UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/239,871	01/29/1999	DOMINIC P. CARROZZA	22-0071	6639

7590   12/24/2002

TRW INC
SPACE & ELECTRONICS GROUP
ONE SPACE PARK E2 6072
REDONDO BEACH, CA   90278

EXAMINER
KUMAR, PANKAJ

ART UNIT	PAPER NUMBER
2631	

DATE MAILED: 12/24/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 07-01)

	Application No.	Applicant(s)
Advisory Action	09/239,871	CARROZZA ET AL.
	Examiner	**Art Unit**	
	Pankaj Kumar	2631	

--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

THE REPLY FILED 12/10/2002 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE. Therefore, further action by the applicant is required to avoid abandonment of this application. A proper reply to a final rejection under 37 CFR 1.113 may <u>only</u> be either: (1) a timely filed amendment which places the application in condition for allowance; (2) a timely filed Notice of Appeal (with appeal fee); or (3) a timely filed Request for Continued Examination (RCE) in compliance with 37 CFR 1.114.

<u>PERIOD FOR REPLY</u> [check either a) or b)]

a) ☒ The period for reply expires _03_ months from the mailing date of the final rejection.

b) ☒ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection. ONLY CHECK THIS BOX WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

1. ☐ A Notice of Appeal was filed on _____. Appellant's Brief must be filed within the period set forth in 37 CFR 1.192(a), or any extension thereof (37 CFR 1.191(d)), to avoid dismissal of the appeal.

2. ☐ The proposed amendment(s) will not be entered because:

    (a) ☐ they raise new issues that would require further consideration and/or search (see NOTE below);

    (b) ☐ they raise the issue of new matter (see Note below);

    (c) ☐ they are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or

    (d) ☐ they present additional claims without canceling a corresponding number of finally rejected claims.
        NOTE: _____.

3. ☐ Applicant's reply has overcome the following rejection(s): _____.

4. ☐ Newly proposed or amended claim(s) _____ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).

5. ☐ The a)☐ affidavit, b)☐ exhibit, or c)☐ request for reconsideration has been considered but does NOT place the application in condition for allowance because: _____.

6. ☐ The affidavit or exhibit will NOT be considered because it is not directed SOLELY to issues which were newly raised by the Examiner in the final rejection.

7. ☒ For purposes of Appeal, the proposed amendment(s) a)☐ will not be entered or b)☒ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.

    The status of the claim(s) is (or will be) as follows:

    Claim(s) allowed: _____.

    Claim(s) objected to: _____.

    Claim(s) rejected: _1-29_.

    Claim(s) withdrawn from consideration: _____.

8. ☐ The proposed drawing correction filed on _____ is a)☐ approved or b)☐ disapproved by the Examiner.

9. ☐ Note the attached Information Disclosure Statement(s)(PTO-1449) Paper No(s). _____.

10. ☒ Other: *see attachment*

Response to Arguments

1.   As per the argument about receiver for claim 1, the recitation 'receiver' has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

2.   As per the argument about receiver for claim 17 which also applies to claim 1, applicant's argument that figure 10 is a transmitter and not a receiver because it has a coder is incorrect. Fig. 10 may be a transmitter but it is also a receiver since it is receiving data. Just because fig. 10 is a transmitter does not preclude it from also being a receiver.

3.   As per applicant's argument that time division multiplexing mentioned in Williams's claim 13 is not applicable to Williams's fig. 10, it is noted that Williams's claim 13 is dependent on Williams's claim 10 which is dependent on Williams's claim 1. Williams claim 1 reads on Williams's fig. 10. Therefore, Williams's claim 13 can apply to the same embodiment of Williams's fig. 10.

4.   In response to applicant's arguments against the references individually (regarding the channelizer argument), one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

5.   In response to applicant's argument that the examiner's conclusion of obviousness is

based upon improper hindsight reasoning, it must be recognized that any judgment on

obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so

long as it takes into account only knowledge which was within the level of ordinary skill at the

time the claimed invention was made, and does not include knowledge gleaned only from the

applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392,

170 USPQ 209 (CCPA 1971).

6.   Applicant stated that the above paragraph is contrary to law. However, the above

paragraph is a form paragraph provided by the USPTO. It is not something the examiner wrote.

Also, the law does not say that "any judgment on obviousness is in a sense necessarily a

reconstruction based upon hindsight reasoning" is contrary to law.

Claim Rejections - 35 USC § 102

1.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on
> sale in this country, more than one year prior to the date of application for patent in the United States.

2.   Claims 1, 13 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Williams

et al US pat no. 5,448,592.

1.   Regarding claim 1, Williams et al. shows a receiver comprising: a memory (Williams fig.

10: 7, 8, 9) including an addressable storage array which stores a sequence of data samples

contained in a time division multiplexed signal (Williams et al. claim 13; col. 15 lines 8 to 23 as

shown by the applicant) from a plurality of channels (Williams fig. 10: 32 bit inputs into 7

through 9) with each successive data sample (Williams fig. 10: LSB then output of 8 then MSB)

belonging to a channel different from a channel to which an immediately preceding data sample

belongs (Williams fig. 10: LSB, output of 8 and MSB are all from different shift register

channels) and outputs the stored data samples in a sequence of data groups (Williams fig. 10:

LSB is data group which can mean only one bit; similarly output of 8 is another group and MSB

is another group) equal in number to the number of the plurality of channels (Williams fig. 10:

three shift register channels 7, 8 and 9 and 3 data groups LSB, output of 8 and MSB) with each

data group containing a plurality of samples from one of the plurality of channels; and a decoder

(Williams fig. 10: 13 modulator which decodes the bits into a modulated signal), responsive to

the sequence of data groups, which decodes the data samples within the data groups and outputs

decoded data samples of the plurality of data groups from the plurality of channels (Williams fig.

10: 13 is outputting the decoded data samples of the plurality of data groups from the plurality of

channels).

3.   The discussion of claim 1 applies to claim 17.

4.   Regarding claim 13, it is inherent for the memory in Williams et al. to comprise a write

address generator and a read address generator and the addressable storage array contains

memory cells which are addressed by addresses generated by the write address generator and the

read address generator, the sequence of data samples being written in a group of memory cells

with addresses generated by the write address generator, and the sequence of data groups being

read out with addresses generated by the read address generator. It is inherent since these are

characteristic elements of a memory.

5. Claim Rejections - 35 USC § 103

6.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

7.   A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8.   Claims 2-12, 14-16, 18-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Williams et al US pat no. 5,448,592.

9.   Regarding claim 2, Williams does not show the data samples comprise orthogonally

encoded data. Instead Williams shows the data samples comprise convolutionally encoded data

(Williams "It is clearly necessary to take action to prevent catastrophic error propagation. The

problem has traditionally been overcome in the convolutionally-encoded case by using the

process of differentially encoding the data first."). It would have been obvious to one skilled in

the art at the time of the invention to modify Williams with orthogonally encoded data instead of

convolutionally encoded data. One would be motivated to do so since both are preventing error

propagation and they are both subsets of data encoding types.; and the decoder is a biorthogonal

inner code soft decision data decoder (Williams paragraph 29: "Another feature of this scheme is

that the decoders work with 1-dimensional distances and are therefore not as complex as the

decoders used in the original scheme which worked with 2-dimensional distances due to the

nature of the signal constellations."; hence it is 'uni' instead of 'bi' (from biorthogonal); It would

have been obvious to one skilled in the art at the time of the invention to modify Williams since

1-dimensional or 'uni' is not as complex as two dimensional or 'bi'. One would be motivated to

do so as taught in Williams – based on the nature of the signal constellations. Williams

paragraph 7 says "It has been shown however that by using a larger constellation (e.g. 32 points)

and a suitable coding of the 4 bits, the resultant inherent redundancy in the modulated symbol

sequence can be exploited by a soft decision decoder to improve the reliability of decoding in the

presence of noise to an extent which exceeds the degradation caused by the larger numbers of

points and results in a net coding gain."; orthogonal is not shown as discussed above).
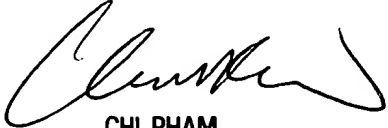
10.   Regarding claim 3, claim 2 is discussed above. Williams shows a receiver wherein the

data decoder is a Reed Muller decoder (Williams paragraph 41 " ... Reed-Muller ... decoders

..."; fig. 11: 28).

11.   Regarding claim 4, claim 2 is discussed above. Williams shows a receiver wherein the

encoded data samples are QPSK encoded (Williams fig. 5; QPSK is equivalent to 4-ary QAM

which is a subset of 16-ary QAM shown in fig. 5).

12.   Regarding claims 14 to 16, it is inherent for the memory in Williams et al. to comprise a

write address generator and a read address generator and the addressable storage array contains

memory cells which are addressed by addresses generated by the write address generator and the

read address generator, the sequence of data samples being written in a group of memory cells

with addresses generated by the write address generator, and the sequence of data groups being

read out with addresses generated by the read address generator. It is inherent since these are

characteristic elements of a memory.

13.   Regarding claims 18 to 19 and 26 to 29, the above discussions apply.

14.   Claims 5-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Williams et al US pat no. 5,448,592 in view of Linsky.

15.   Regarding claims 5 to 8, Williams shows the elements of claims 1-4. What Williams does not show is a satellite. Linsky shows the receiver is contained in a satellite (Linsky: col. 3, fourth full paragraph). It would have been obvious to one skilled in the art at the time of the invention to modify Williams to include satellite. One would be motivated to do so since the elements of claims 1-4 would make the satellite efficient.

16.   Regarding claims 9 to 12, Williams with Linsky show the elements of claims 5 to 8. Williams with Linsky further show a channelizer (Williams: fig. 11: 26), which is responsive to an input bandwidth (Williams fig. 11: 16x8) and which divides the input bandwidth into a plurality of output channels each of equal bandwidth (Williams fig. 11: / 32x7 and /32). What Williams also shows is one of the output channels comprising the time division multiplexed signal (Williams claim 13).

Regarding claims 20 to 25, the above discussion for claims 5-12 apply.

CHI PHAM
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600   12/20/02